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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/582,834

Applicant(s)

NICOL ET AL.

Examiner

DISLER PAUL

Art Unit

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/02)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- A. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In particular for claim 1 as in example, it is ambiguous in regard to what the applicant's is claiming in regard to his invention, most notably since there appear to be both an apparatus and "process-method" in therein.

Thus, for prior art reference, the claim will simply read as a method claims.

Response to Amendment

The applicant's amended claim 16 and also claims 1-15, has been considered and rejected in view of Bruno et al. (US 7,394,904 B2).

Applicant's arguments as filed in regard to Ashour et al. fail to disclose of the claim invention have been fully considered but they are not persuasive. Ashour et al. **does disclose the claimed limitations** "acoustic synthesis and spatialization method, in which a synthetic sound to be generated is characterized by the nature of a virtual acoustic source and its position relative to a chosen origin, wherein the method comprises a joint step of

determining parameters including at least one gain, for defining, at the same time: a loudness characterizing the nature of the source, and the position of the source relative to a predetermined origin" as recited in the independent claims ((Ashour, fig.3-4; col.4 line 35-65 & line 5-15/with synthesis sound may be placed wt filters in any spatial locations and with gains for enabling the determination of the loudness and at same time permit discerning the location of the sound)).

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-16 are rejected under 35 U.S.C. 101 because the statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus). For example in regard to claim 1, while the instant claim recites a series of steps or acts to be performed, such as determining parameters , however the claim does not positively ties to another statutory category that accomplishes the claimed method steps, and therefore does not qualify as a statutory process. Thus, the step of "determining parameters" is of sufficient breadth that it would be reasonably interpreted as a series of steps completely performed mentally, verbally or without a machine.

Also, For example in regard to claim 16, while the instant claim recites a series of steps or acts to be performed, such as generating ; outputting , however the claim does not positively ties to another statutory category that accomplishes the claimed method steps, and therefore does not qualify as a statutory process. Thus, the step of "generating and outputting" is of sufficient breadth that it would be reasonably interpreted as a series of steps completely performed mentally, verbally or without a machine.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4; 6-8; 10; 13-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Bruno et al. (US 7,394,904 B2).

Re claim 16; Bruno et al. disclose of a method for operating an acoustic signal synthesis device comprising: generating a first set of parameters including at least a frequency, a duration and an intensity for defining an acoustic signal (col.7 line 1-6; col.13 line 1-25; col.11 line 55-62; fig.2 (3n,5); having parameters for gains/intensity and frequency and

duration) and generating a second set of parameters for defining a position of a virtual source of the acoustic signal relative to a particular origin (col.10 line 5-15; fig.2 (3n,5); also parameter for sound with particular origin) and outputting an acoustic signal representing the virtual source based on the first and second sets of parameters (fig.2 (1); col.7 line 18-21); col.14 line 17-26) and wherein the intensity parameter defines, at least partially, both of a loudness characterizing the nature of the source, and the position of the source relative to the origin (fig.2 (3n,5); col.13 line 3-15; col.11 line 54-61/ with parameters (r-n, hp(t)); enable for gain adjustment and distance determined and thus implement at same time both loudness and position).

Re claim 1; Bruno et al. disclose of a method for operating a device for generating a synthesized and spatialized acoustic signal in which a synthetic sound to be generated is characterized by the nature of a virtual acoustic source and its position relative to a chosen origin, wherein the device comprises a spatialization means which is at least partly incorporated in a synthesis means of the device (fig.9-10 (SI, 6); fig.2 (1); col.8 line 13-24/synthesized and spatial signal) and wherein the method comprises a joint step of determining parameters including at least one gain, for defining, at the same time: a loudness characterizing the nature of the source, and the position of the source relative to a predetermined origin (fig.2 (3n,5); col.13 line 3-15; col.11 line 54-61/ with parameters (r-n, hp(t)); enable for gain adjustment and distance determined and thus implement at same time both loud and position).

Re Claim 2 , the method as claimed in claim 1, in which the spatialization of the virtual source is performed in an ambisonic context, further comprising a step for calculating gains associated with ambisonic components in a spherical harmonics base (col.8 line 65-67; col.1 line 54-59; fig.1; col.7 line 1-6/enabling such gain determination).

Claim 3, the method as claimed in claim 1, in which the synthetic sound is intended to be reproduced in a holophonic, or binaural, or transaural context, on a plurality of reproduction channels, wherein, during said joint step, a delay between reproduction channels is also determined, to define at the same time: a triggering instant of the sound characterizing the nature of the source, and the position of the source relative to a predetermined origin (fig.2 (30); col.21 line 31-39; col.7 line 1-6; col.12 line 1-6/determined such nature of source and position at instant time).

Re claim 4, the method as claimed in claim 3, wherein the nature of the virtual source is parameterized at least by a temporal loudness variation, over a chosen duration and including a sound triggering instant (fig.2 (3n,5); col.13 line 3-15; col.11 line 54-61/ with parameters ($r-n$, $hp(t)$); enable for gain/loudness and duration at instant).

RE claim 6; the method as claimed in claim 3, wherein the spatialization of the virtual source is performed by a binaural synthesis based on a linear breakdown of transfer functions, these transfer functions being expressed by a linear combination of

terms dependent on the frequency of the sound and weighted by terms dependent on the direction of the sound (fig.9; col.8 line 38-41).

Claim 7, the method as claimed in claim 6, wherein the direction is defined by at least one bias angle and, preferably, by a bias angle and an elevation angle (col.12 line 43-52/with bias/elevation angle).

Claim 8; the method as claimed in claim 6, wherein the position of the virtual source is parameterized at least by: a number of filterings, dependent on the acoustic frequency and a number of weighting gains each associated with a filtering, and a delay for each "left" and "right" channel (fig.10 (1); col.23 line 10-20/of the plurality of channels signal are filtered sum and gain and delayed).

Similarly Re claims 13-15 have been analyzed and rejected with respect to claim 1.

Re claim 10; the method as claimed in claim 1, wherein the method provides for an acoustic synthesis engine to generate spatialized sounds, relative to said predetermined origin (fig.9-10; col.8 line 15-27).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruno et al. (US 7,394,904 B2) and Ashour et al. (US 6,459,797 B12).

Re claim 11, the method as claimed in claim 10, having an engine synthesis. However, Bruno et al. fail to disclosed of the synthesis engine is implemented in a music editing context, wherein the method also provides for a man-machine interface to place the virtual source in a chosen position relative to the predetermined origin. But, Ashour et al. disclosed of the synthesis engine is implemented in a music editing context, wherein the method also provides for a man-machine interface to place the virtual source in a chosen position relative to the predetermined origin (fig.2-3; col.2 line 50-60; col.3 line 37-45). Thus, it would have been obvious to have modified Bruno et al. with the synthesis engine is implemented in a music editing context, wherein the method also provides for a man-machine interface to place the virtual source in a chosen position relative to the predetermined origin for enabling the user to input such desired source position.

Re claim 12, the method as claimed in claim 12, in which a plurality of virtual sources to be synthesized and spatialized are provided, wherein each source is assigned to a respective position (fig.2 (3..3n))

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bruno et al. (US 7,394,904 B2) and Hashimoto et al. (US 7,386,139 B2).

Re claim 9, the method as claimed in claim 1, But, Bruno et al. fail to disclose of the wherein the nature of the virtual source is parameterized by at least one acoustic timbre, by associating the chosen relative loudnesses with harmonics of a frequency corresponding to a pitch of the sound. But, Hashimoto et al. disclose of a system wherein the similar concept of the nature of the virtual source is parameterized by at least one acoustic timbre, by associating the chosen relative loudnesses with harmonics of a frequency corresponding to a pitch of the sound (fig.46; col.30 line 43-56; col.21 line 9-15/speech or vocal of loudness/amplitude with frequency). Thus, it would have been obvious for one of the ordinary skill in the art to have modified Brunoe et al. with the similar concept of the nature of the virtual source is parameterized by at least one acoustic timbre, by associating the chosen relative loudnesses with harmonics of a frequency corresponding to a pitch of the sound for improving the sense of localization of sound by a user.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bruno et al. (US 7,394,904 B2).

Re claim 5, the method as claimed in claim 4 with the sound delay and phase and duration of the sound signal, However, Bruno et al. failed to disclose of the specific wherein said variation comprises at least: an instrumental attack phase, a decay phase, a sustain phase, and a release phase. However, it is noted that the concept of having a signal wherein specifically signal variation comprises at least: an instrumental attack phase, a decay phase, a sustain phase, and a release phase is merely the designer's need (wherein the signal being partitioned/varied as phase and decay and sustain portions). Thus it would have been obvious for one of the ordinary skill in the art to have modify Bruno et al. with the specific of using the variation comprises at least: an instrumental attack phase, a decay phase, a sustain phase, and a release phase for purpose of identifying the signal based on its unique characteristics

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3, 10-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Ashour et al. (US 6,459,797 B1).

Re claim 1, Ashour et al. disclose of a method for operating a device for generating a synthesized and spatialized acoustical, in which a synthetic sound to be generated is characterized by the nature of a virtual acoustic source and its position relative to a chosen origin, wherein the device comprises a spatialization means which is at least partly incorporated in a synthesis means of the device and wherein the method comprises a joint step of determining parameters including at least one gain, for defining, at the same time: a loudness characterizing the nature of the source, and the position of the source relative to a predetermined origin ((Ashour, fig.3-4; col.4 line 35-65)/gain with sound level and location as with user).

Re claim 3, the method as claimed in claim 1, in which the synthetic sound is intended to be reproduced in a holophonic, or binaural, or transaural context, on a plurality of reproduction channels, wherein, during said joint step, a delay between reproduction channels is also determined, to define at the same time: a triggering instant of the sound characterizing the nature of the source, and the position of the source relative to a predetermined origin ((Ashour, fig.4; col.3 line 25-30)).

RE claim 2, the method as claimed in claim 1, in which the spatialization of the virtual source is performed in an ambisonic context, further comprising a step for calculating gains associated components in a spherical harmonics base(fig.3-4; col.3 line 47- col.4 line 41/surround amplitude of each sound signal).

Re claim 13-15 have been analyzed and rejected with respect to claim 1.

Re claim 10, the method as claimed in claim 1 with having synthetic sound at predetermined origin, the synthetic sound wherein the method provides for an acoustic synthesis engine to generate spatialized sounds, relative to said predetermined origin (fig.2-3; col.2 line 50-65) for enabling the sound source to be moved around in real time at certain degree from the listener.

RE claim 11, the method as claimed in claim 10, in which the synthesis engine is implemented in a music editing context, wherein the method also provides for a man-machine interface to place the virtual source in a chosen position relative to the predetermined origin (fig.2-3; col.2 line 50-60).

Re claim 12, the method as claimed in claim 11, in which a plurality of virtual sources to be synthesized and spatialized are provided, wherein each source is assigned to a respective position (fig.3; col.3 line 35-45).

8. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ashour et al. (US 6,459,797 B1) and further in view of Abel et al. (US 5,596,644).

6. The method as claimed in claim 3, wherein the spatialization of the virtual source is performed by a binaural synthesis analysis; however, Ashour et al. fail to disclose of the analysis synthesis based on a linear breakdown of transfer functions, these transfer functions being expressed by a linear combination of terms dependent on the frequency of the sound and weighted by terms dependent on the direction of the sound. But, Abel et al. disclose of the synthesizing system wherein analysis synthesis based on a linear breakdown of transfer functions, these transfer functions being expressed by a linear combination of terms dependent on the frequency of the sound and weighted by terms dependent on the direction of the sound (fig.1-3; col.11 line 28-35; col.12 line 50-67) for obtaining efficient accurate sound quality signals in arbitrary location. Thus, taking the combined teaching of Ashour et al. and Abel et al. it would have been obvious for one of the ordinary skill in the art to have modify Abel et al. with the synthesizing system wherein analysis synthesis based on a linear breakdown of transfer functions, these transfer functions

being expressed by a linear combination of terms dependent on the frequency of the sound and weighted by terms dependent on the direction of the sound for obtaining efficient accurate sound quality signals in arbitrary location.

Re claim 7, the method as claimed in claim 6, wherein the direction is defined by at least one bias angle and, preferably, by a bias angle and an elevation angle (col.10 line 15-35).

Re claim 8, the method as claimed in claim 6, wherein the position of the virtual source is parameterized at least by: a number of filtering, dependent on the acoustic frequency, a number of weighting gains each associated with a filtering, and a delay for each "left" and "right" channel (Abel, fig.6).

Claims 4-5 are rejected under 35 U.S.C. 102(e) as being Unpatentable over Ashour et al. (US 6,459,797 B1) and Fay et al. (US 2002/0161462 A1).

Re claim 4, the method as claimed in claim 3, But, Ashour et al. fail to disclose of wherein the nature of the virtual source is parameterized at least by a temporal loudness variation, over a chosen duration and including a sound triggering instant. But, Fay et al. disclose of a synthesizer system wherein the nature of the virtual

source is parameterized at least by a temporal loudness variation, over a chosen duration and including a sound triggering instant (par [0004; 0046-0047; 0075; 0085; 0140]/instant time of audio volume adjusting/variation with scene). Thus, taking the combined teaching of Ashour et al. and Fay et al. as a whole, it would have been obvious for one of the ordinary skill in the art to have modified Ashour et al. with the virtual source is parameterized at least by a temporal loudness variation, over a chosen duration and including a sound triggering instant for enabling the real audio representation of a video game.

Re claim 5, the method as claimed in claim 4 with the sound delay and phase and duration of the sound signal, However, the combined teaching of Ashour et al. and Fay et al. as a whole, fail to disclose of the specific wherein said variation comprises at least: an instrumental attack phase, a decay phase, a sustain phase, and a release phase. However, it is noted that the concept of having a signal wherein specifically signal variation comprises at least: an instrumental attack phase, a decay phase, a sustain phase, and a release phase is the designer's need, thus it would have been obvious for one of the ordinary skill in the art to have modify the combined teaching of Ashour et al. and Fay et al. as a whole, with the specific of using the variation comprises at least: an instrumental attack phase, a

decay phase, a sustain phase, and a release phase for purpose of identifying the signal based on its unique characteristics.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ashour et al. (US 6,459,797 B1) and Hashimoto et al. (US 7,386,139 B2).

Re claim 9, the method as claimed in claim 1, But, Ashour et al. fail to disclose of the wherein the nature of the virtual source is parameterized by at least one acoustic timbre, by associating the chosen relative loudnesses with harmonics of a frequency corresponding to a pitch of the sound. But, Hashimoto et al. disclose of a system wherein the similar concept of the nature of the virtual source is parameterized by at least one acoustic timbre, by associating the chosen relative loudnesses with harmonics of a frequency corresponding to a pitch of the sound (fig.46; col.30 line 43-56; col.21 line 9-15/speech or vocal of loudness/amplitude with frequency). Thus, taking the combined teaching of Ashour et al. and Hashimoto et al. as a whole, it would have been obvious for one of the ordinary skill in the art to have modified Ashour et al. with the similar concept of the nature of the virtual source is parameterized by at least one acoustic timbre, by associating the chosen relative loudnesses with harmonics of a frequency corresponding to a pitch of the sound for improving the sense of localization of sound by a user.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DISLER PAUL whose telephone number is (571)270-1187. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. P./

Examiner, Art Unit 2614

/Vivian Chin/

Supervisory Patent Examiner, Art Unit 2614